

SEQUENCE LISTING

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PARK, KYUNG-SOON
JANG, YOUNG-SOON

<120> REGULATION OF PROKARYOTIC GENE EXPRESSION WITH ZINC
FINGER PROTEINS

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<151> 2004-12-23

<150> 60/532,362
<151> 2003-12-23

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<170> PatentIn Ver. 3.3

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Thr Arg His Arg Arg Ile His
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Lys Thr His Thr Arg Thr His
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Val Cys Gly Lys Ala Phe Arg His Ser Ser Ser Leu Val Arg His Gln
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Lys Tyr Cys Asp Arg
 50 55 60

Ser Phe Ser Ile Ser Ser Asn Leu Gln Arg His Val Arg Asn Ile His
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 20 25 30

Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Lys Tyr Cys Asp Arg
 50 55 60

Ser Phe Ser Ile Ser Ser Asn Leu Gln Arg His Val Arg Asn Ile His
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 protein

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 20 25 30

Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His
 35 40 45

Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly
 50 55 60

Lys Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His
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Thr Gly Glu Lys Pro Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser
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Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His
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Asn Val His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp
 20 25 30

His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys
 50 55 60
 Ala Phe Thr Gln Ser Ser Asn Leu Thr Lys His Lys Lys Ile His Thr
 65 70 75 80
 Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln
 85 90 95
 Ser Ser Asn Leu Thr Lys His Lys Lys Ile His
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 20 25 30
 His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys
 35 40 45
 Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys
 50 55 60
 Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr
 65 70 75 80
 Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln
 85 90 95
 Ser Ser Ser Leu Ile Arg His Gln Arg Thr His
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Thr Arg His Lys Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Asp
 20 25 30

His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys
 50 55 60

Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr
 65 70 75 80

Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln
 85 90 95

Ser Ser His Leu Asn Val His Lys Arg Thr His
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Thr Arg His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met
 20 25 30

Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
 35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys
 50 55 60

Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr
 65 70 75 80

Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln
 85 90 95

Ser Thr His Leu Thr Arg His Arg Arg Ile His
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 35 40 45
 His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys
 50 55 60
 Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys Arg Thr
 65 70 75 80
 His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe
 85 90 95
 Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His
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 20 25 30
 Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln
 35 40 45
 Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys
 50 55 60
 Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr
 65 70 75 80

Ser Thr His Leu Thr Arg His Arg Arg Ile His
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20 25 30

His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys Lys Asp Cys Gly Lys
50 55 60

Ala Phe Ile Gln Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr
65 70 75 80

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85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His
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20 25 30

Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys
 50 55 60

Ser Phe Ser Gln Ser Ser Leu Ile Arg His Gln Arg Thr His Thr
 65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg
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Ser Asp His Leu Lys Thr His Thr Arg Thr His
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<223> Description of Artificial Sequence: Synthetic
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 20 25 30

His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys
 50 55 60

Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr
 65 70 75 80

Gly Glu Lys Pro Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln
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Lys Ser Asn Leu Ile Arg His Gln Arg Thr His
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 20 25 30

Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr
 35 40 45

His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys
 50 55 60

Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu Thr Lys His Lys Lys Ile
 65 70 75 80

His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe
 85 90 95

Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His
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Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys
 20 25 30

Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His
 35 40 45

Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys
 50 55 60

Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His
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Thr Lys Ile His Leu Arg Gln Lys Asp
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Arg Arg His Gly Arg Thr His
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Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu
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His Arg His Gln Arg Thr His
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1 5 10 15

Arg Arg His Cys Ile Leu His
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Asn Arg His Arg Arg Thr His
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 Val Arg His Gln Arg Thr His
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 Gln Arg His Val Arg Asn Ile His
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 Asn Val His Arg Arg Ile His
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Arg Arg His Glu Met Ile His
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<400> 69

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 1 5 10 15

Ile Arg His His Lys Leu His
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Arg Arg His Glu Arg Thr His
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<400> 71

Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu
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Leu Arg His Ile Lys Leu His
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Arg Arg His Glu Lys Thr His
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 Thr Arg His Gln Lys Ile His
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 <213> Homo sapiens

<400> 74
 Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Ser His Leu
 1 5 10 15
 Arg Arg His Glu Lys Thr His
 20

<210> 75
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 75
 Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu
 1 5 10 15
 Arg Arg His Glu Lys Thr His
 20

<210> 76
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 76
 Tyr Val Cys Arg Glu Cys Gly Arg Gly Phe Arg Gln His Ser His Leu
 1 5 10 15
 Val Arg His Lys Arg Thr His
 20

<210> 77
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 77

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15

Thr Thr His Lys Ile Ile His
 20

<210> 78

<211> 23

<212> PRT

<213> Homo sapiens

<400> 78

Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1 5 10 15

Asn Val His Lys Arg Thr His
 20

<210> 79

<211> 23

<212> PRT

<213> Homo sapiens

<400> 79

Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15

Ile Ile His Gln Arg Thr His
 20

<210> 80

<211> 23

<212> PRT

<213> Homo sapiens

<400> 80

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15

Thr Lys His Lys Lys Ile His
 20

<210> 81

<211> 23

<212> PRT

<213> Homo sapiens

<400> 81

Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Asn Leu
 1 5 10 15

Ile Arg His Gln Arg Thr His
20

<210> 82
<211> 23
<212> PRT
<213> Homo sapiens

<400> 82
Tyr Val Cys Arg Glu Cys Arg Arg Gly Phe Ser Gln Lys Ser Asn Leu
1 5 10 15

Ile Arg His Gln Arg Thr His
20

<210> 83
<211> 23
<212> PRT
<213> Homo sapiens

<400> 83
Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
1 5 10 15

Thr Arg His Lys Lys Ser His
20

<210> 84
<211> 23
<212> PRT
<213> Homo sapiens

<400> 84
Tyr Glu Cys Asn Thr Cys Arg Lys Thr Phe Ser Gln Lys Ser Asn Leu
1 5 10 15

Ile Val His Gln Arg Thr His
20

<210> 85
<211> 23
<212> PRT
<213> Homo sapiens

<400> 85
Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
1 5 10 15

Thr Val His Gln Lys Ile His
20

<210> 86
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 86
 Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15
 Ile Val His Lys Arg Ile His
 20

<210> 87
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 87
 Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu
 1 5 10 15
 Gly Val His Gln Arg Thr His
 20

<210> 88
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 88
 Tyr Glu Cys Val Gln Cys Gly Lys Gly Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15
 Ile Thr His Gln Arg Val His
 20

<210> 89
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 89
 Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15
 Ile Arg His Gln Arg Thr His
 20

<210> 90
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 90

Tyr Glu Cys Gln Asp Cys Gly Arg Ala Phe Asn Gln Asn Ser Ser Leu
 1 5 10 15

Gly Arg His Lys Arg Thr His
 20

<210> 91

<211> 23

<212> PRT

<213> Homo sapiens

<400> 91

Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15

Ile Arg His Arg Arg Ser His
 20

<210> 92

<211> 23

<212> PRT

<213> Homo sapiens

<400> 92

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr Leu
 1 5 10 15

Thr Arg His Lys Ile Val His
 20

<210> 93

<211> 23

<212> PRT

<213> Homo sapiens

<400> 93

Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala Gln Asn Ser Thr Leu
 1 5 10 15

Arg Val His Gln Arg Ile His
 20

<210> 94

<211> 23

<212> PRT

<213> Homo sapiens

<400> 94

Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15

Thr Gln His Arg Arg Ile His
 20

<210> 95
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 95
 Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15
 Thr Arg His Arg Arg Ile His
 20

<210> 96
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 96
 His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu
 1 5 10 15
 Thr Arg His Gln Arg Thr
 20

<210> 97
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 97
 Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Asn Arg His Lys Lys Arg His
 20 25

<210> 98
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 98
 Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Thr Arg His Tyr Arg Lys His
 20 25

<210> 99
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 99

Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp
 1 5 10 15

Glu Leu Thr Arg His Phe Arg Lys His
 20 25

<210> 100

<211> 25

<212> PRT

<213> Homo sapiens

<400> 100

Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp
 1 5 10 15

Glu Leu Ser Arg His Arg Arg Thr His
 20 25

<210> 101

<211> 25

<212> PRT

<213> Homo sapiens

<400> 101

Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp
 1 5 10 15

Glu Leu Ala Arg His Tyr Arg Thr His
 20 25

<210> 102

<211> 25

<212> PRT

<213> Homo sapiens

<400> 102

Tyr His Cys Asn Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15

Glu Leu Thr Arg His Tyr Arg Lys His
 20 25

<210> 103

<211> 24

<212> PRT

<213> Homo sapiens

<400> 103

Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
 1 5 10 15

Thr Arg His Met Lys Lys Ser His
20

<210> 104
<211> 23
<212> PRT
<213> Homo sapiens

<400> 104
Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His
20

<210> 105
<211> 23
<212> PRT
<213> Homo sapiens

<400> 105
Phe Ala Cys Glu Val Cys Gly Val Arg Phe Thr Arg Asn Asp Lys Leu
1 5 10 15

Lys Ile His Met Arg Lys His
20

<210> 106
<211> 25
<212> PRT
<213> Homo sapiens

<400> 106
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Lys Leu Asn Arg His Lys Lys Arg His
20 25

<210> 107
<211> 23
<212> PRT
<213> Homo sapiens

<400> 107
Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
1 5 10 15

Thr Arg His Gln Arg Ile His
20

<210> 108
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 108
 Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
 1 5 10 15
 Ile Arg His Gln Arg Thr His
 20

<210> 109
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 109
 Tyr Leu Cys Ser Glu Cys Asp Lys Cys Phe Ser Arg Ser Thr Asn Leu
 1 5 10 15
 Ile Arg His Arg Arg Thr His
 20

<210> 110
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 110
 Tyr Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser Ser Gly Ser Asn Phe
 1 5 10 15
 Thr Arg His Gln Arg Ile His
 20

<210> 111
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 111
 Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
 1 5 10 15
 Asn Val His Arg Arg Ile His
 20

<210> 112
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 112

Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
 1 5 10 15

Arg Arg His Glu Thr Thr His
 20

<210> 113

<211> 23

<212> PRT

<213> Homo sapiens

<400> 113

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
 1 5 10 15

Ile Arg His Gln Arg Ile His
 20

<210> 114

<211> 23

<212> PRT

<213> Homo sapiens

<400> 114

Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu
 1 5 10 15

Thr Arg His Lys Arg Ile His
 20

<210> 115

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<220>

<221> MOD_RES

<222> (3)

<223> Glu or Gln

<220>

<221> MOD_RES

<222> (4)

<223> Lys or Arg

<220>

<221> MOD_RES

<222> (6)

<223> Tyr or Phe

<400> 115

Thr Gly Xaa Xaa Pro Xaa
1 5

<210> 116

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (1)

<223> Phe or Tyr

<220>

<221> MOD_RES

<222> (2)

<223> variable amino acid

<220>

<221> MOD_RES

<222> (4)..(8)

<223> region may encompass 2-5 variable amino acids

<220>

<221> MOD_RES

<222> (10)..(12)

<223> variable amino acid

<220>

<221> MOD_RES

<222> (13)

<223> Phe or Tyr

<220>

<221> MOD_RES

<222> (14)

<223> variable amino acid

<220>

<221> MOD_RES

<222> (16)

<223> variable amino acid

<220>

<221> MOD_RES

<222> (19)

<223> hydrophobic amino acid

<220>

<221> MOD_RES

<222> (20)

<223> variable amino acid

<220>
 <221> MOD_RES
 <222> (23)..(27)
 <223> region may encompass 3-5 variable amino acids

<400> 116
 Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa
 1 5 10 15
 Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
 20 25

<210> 117
 <211> 267
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide sequence

<400> 117
 atcgataagc taattctcac tcattaggca cccagggtt tacactttat gcttccggct 60
 cgtataatgt gtggaattgt gagcggataa caatttcaca caggaaacag cgtccatggg 120
 taagcctatc cctaaccctc tcctcgggtc cgattctaca caagctatgg gtgctcctcc 180
 aaaaaagaag agaaaggtag ctggatccac tagtaacggc cgccagtgtg ctggaattct 240
 gcagatatcc atcacactgg cggccgc 267

<210> 118
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 118
 Phe Met Cys Thr Trp Ser Tyr Cys Gly Lys Arg Phe Thr Asp Arg Ser
 1 5 10 15
 Ala Leu Ala Arg His Lys Arg Thr His
 20 25

<210> 119
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 119
 Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
 1 5 10 15

Arg Arg His Gly Arg Thr His
20

<210> 120
<211> 23
<212> PRT
<213> Homo sapiens

<400> 120
Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu
1 5 10 15

Asn Arg His Arg Arg Thr His
20

<210> 121
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 121
Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Asp Ser Ser
1 5 10 15

Asn Leu Thr Arg His Ile Arg Ile His
20 25

<210> 122
<211> 23
<212> PRT
<213> Homo sapiens

<400> 122
Phe Lys Cys Pro Val Cys Gly Lys Ala Phe Arg His Ser Ser Ser Leu
1 5 10 15

Val Arg His Gln Arg Thr His
20

<210> 123
<211> 24
<212> PRT
<213> Homo sapiens

<400> 123
Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Ile Ser Ser Asn Leu
1 5 10 15

Gln Arg His Val Arg Asn Ile His
20

<210> 124
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 124
 Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu
 1 5 10 15
 Arg Arg His Glu Arg Thr His
 20

<210> 125
 <211> 23
 <212> PRT
 <213> Drosophila sp.

<400> 125
 Tyr Thr Cys Ser Tyr Cys Gly Lys Ser Phe Thr Gln Ser Asn Thr Leu
 1 5 10 15
 Lys Gln His Thr Arg Ile His
 20

<210> 126
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 126
 Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1 5 10 15
 Asn Val His Lys Arg Thr His
 20

<210> 127
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 127
 Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15
 Ile Ile His Gln Arg Thr His
 20

<210> 128
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 128

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15

Thr Lys His Lys Lys Ile His
 20

<210> 129

<211> 23

<212> PRT

<213> Homo sapiens

<400> 129

Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Asn Leu
 1 5 10 15

Ile Arg His Gln Arg Thr His
 20

<210> 130

<211> 23

<212> PRT

<213> Homo sapiens

<400> 130

Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15

Thr Val His Gln Lys Ile His
 20

<210> 131

<211> 23

<212> PRT

<213> Homo sapiens

<400> 131

Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15

Ile Arg His Gln Arg Thr His
 20

<210> 132

<211> 23

<212> PRT

<213> Homo sapiens

<400> 132

Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15

Thr Gln His Arg Arg Ile His
20

<210> 133
<211> 23
<212> PRT
<213> Homo sapiens

<400> 133
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
1 5 10 15

Thr Arg His Arg Arg Ile His
20

<210> 134
<211> 23
<212> PRT
<213> Homo sapiens

<400> 134
Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
1 5 10 15

Lys Thr His Thr Arg Thr His
20

<210> 135
<211> 25
<212> PRT
<213> Homo sapiens

<400> 135
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

Lys Leu Asn Arg His Lys Lys Arg His
20 25

<210> 136
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 136
Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met Arg Ser Asp Asn Leu
1 5 10 15

Thr Gln His Ile Lys Thr His
20

<210> 137
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 137
 Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1 5 10 15
 Thr Arg His Gln Arg Ile His
 20

<210> 138
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 138
 Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
 1 5 10 15
 Ile Arg His Gln Arg Thr His
 20

<210> 139
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 139
 Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu
 1 5 10 15
 Asn Val His Arg Arg Ile His
 20

<210> 140
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 140
 Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
 1 5 10 15
 Arg Arg His Glu Thr Thr His
 20

<210> 141
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 141

Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu
 1 5 10 15

Ile Arg His Gln Arg Ile His
 20

<210> 142

<211> 23

<212> PRT

<213> Homo sapiens

<400> 142

Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu
 1 5 10 15

Thr Arg His Lys Arg Ile His
 20

<210> 143

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 143

daadaaaath ga

12

<210> 144

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>

<221> modified_base

<222> (10)

<223> a, c, g, t, unknown or other

<400> 144

gyagrahgan ggk

13

<210> 145

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 145

hgaaathgag gt

12

<210> 146

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 146

gragragsggg ra

12

<210> 147

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>

<221> modified_base

<222> (7)

<223> a, c, g, t, unknown or other

<400> 147

grahganggg tc

12

<210> 148

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 148

gragragsggh ga

12

<210> 149

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 149

gavgaaaath ga

12

<210> 150

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>

<221> modified_base

<222> (1)

<223> a, c, g, t, unknown or other

<400> 150

ngggyagraa at

12

<210> 151

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>

<221> modified_base

<222> (10)

<223> a, c, g, t, unknown or other

<400> 151

gaagrahgan ggk

13

<210> 152

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>

<221> modified_base

<222> (7)

<223> a, c, g, t, unknown or other

<400> 152
gradaanggg tc

12

<210> 153
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<220>
<221> modified_base
<222> (10)
<223> a, c, g, t, unknown or other

<400> 153
gaagrahgan gg

12

<210> 154
<211> 189
<212> PRT
<213> Escherichia coli

<400> 154
Met Lys Arg Leu Ile Val Gly Ile Ser Gly Ala Ser Gly Ala Ile Tyr
1 5 10 15
Gly Val Arg Leu Leu Gln Val Leu Arg Asp Val Thr Asp Ile Glu Thr
20 25 30
His Leu Val Met Ser Gln Ala Ala Arg Gln Thr Leu Ser Leu Glu Thr
35 40 45
Asp Phe Ser Leu Arg Glu Val Gln Ala Leu Ala Asp Val Thr His Asp
50 55 60
Ala Arg Asp Ile Ala Ala Ser Ile Ser Ser Gly Ser Phe Gln Thr Leu
65 70 75 80
Gly Met Val Ile Leu Pro Cys Ser Ile Lys Thr Leu Ser Gly Ile Val
85 90 95
His Ser Tyr Thr Asp Gly Leu Leu Thr Arg Ala Ala Asp Val Val Leu
100 105 110
Lys Glu Arg Arg Pro Leu Val Leu Cys Val Arg Glu Thr Pro Leu His
115 120 125
Leu Gly His Leu Arg Leu Met Thr Gln Ala Ala Glu Ile Gly Ala Val
130 135 140
Ile Met Pro Pro Val Pro Ala Phe Tyr His Arg Pro Gln Ser Leu Asp
145 150 155 160

Asp Val Ile Asn Gln Thr Val Asn Arg Val Leu Asp Gln Phe Ala Ile
 165 170 175

Thr Leu Pro Glu Asp Leu Phe Ala Arg Trp Gln Gly Ala
 180 185

<210> 155

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 primer

<400> 155

ctggaagaga ccggaagaga tgctg

25

<210> 156

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 primer

<400> 156

tgaaacgact cattgtaggc atcag

25

<210> 157

<211> 12

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<220>

<221> modified_base

<222> (7)

<223> a, c, g, t, unknown or other

<400> 157

gctgranggg ah

12